

Work Order ID 151384

Friday, September 23, 2016 2:49:10 PM

151384

Page 1

Item ID: D205-634-041 Accept ***N900040100*** Setup Start ***NS1***
Revision ID: Stop ***NS2***
Item Name: Replacement Skidtube with Standard Wearplates Fits LH or RH

Start Date: 9/16/2016 Start Qty: 1.00 ***1***

Cust Item ID:

Required Date: 9/23/2016 Req'd Qty: 1.00 ***1***

Customer:

Reference: Run Start ***NR1***Approvals: Process Plan: **DAS 21 9-89** Date: **SEP 26 2016** Tooling: Date: ***NR2***

QC: Date: SPC (Y/N): Date:

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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Draw Nbr	Revision Nbr
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D2580-041	G
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100 Document Control 0.00
DOCUMENT CONTROL
Memo 0.00
DC Photocopy D205-634 bluefile & type labels per PPP D205-634-041 CHG005
Doc.Control -USB or Paperwork

DAS 27 9-89

DEC 08 2016

110

110

CNC Bend 1

CNC Delta 100 Bender

BENDING MACHINE - SKIDTUBES

Memo

1-Bend as per program D2580.C on CNC Bender and Folio 16

2-Cut tubes as per Dwg. D2580

3- scribe batch# in aft end of tube

B151384

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Page 2

Item ID: D205-634-041**Accept*****N900040100*****Setup Start *NS1*****Revision ID:****Item Name:** Replacement Skidtube with Standard Wearplates Fits LH or RH**Stop *NS2*****Start Date:** 9/16/2016 **Start Qty:** 1.00 ***1*****Cust Item ID:****Required Date:** 9/23/2016 **Req'd Qty:** 1.00 ***1*****Customer:****Reference:****Approvals:** **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____**Run Start *NR1*****QC:** _____ **Date:** _____ **SPC (Y/N):** _____ **Date:** _____**Stop *NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
120		0.00							
120									
Skidtubes	Memo	0.21							
Skidtubes	1- Deburr ends and remove bending marks								
	2- Prepare tube for welding as per QSI 004								
130	QC5- Inspect part completeness to step on W/O	0.00							
130									
QC	Memo	0.00							
Quality Control									

DAS
03
9-29

16-11-10

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No.: _____ NCR No.: _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐																																																											
Date :		Step #:		QTY Effective :				MRB (QSI042) Approval																																																							
Description Work Order Deviation				Disposition				Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval																																																							
Root Cause		FAULT CATEGORY																																																													
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐	Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐	Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐	Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐	Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐	Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐	Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐	Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐	LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐	Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐	Past Expiry Date ☐	Manufacturing Process ☐	OTHER :	
Misidentified ☐	Past Due ☐																																																														

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Page 3

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Start Date: 9/16/2016 Start Qty: 1.00 ***1*** Cust Item ID:
Required Date: 9/23/2016 Req'd Qty: 1.00 ***1*** Customer:
Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
140		0.00							
140 Skidtubes	Memo	0.25							
Skidtubes	1-Weld step D2576 as per Dwg. D2580 and QSI 004 A/R Aluminum Rod <i>m133750</i>								
	2-Grind welds on step as per Dwg D2580								
	3- Insert D4202-1 spacer, swage as per QSI002 and trim/ grind flush per QSI002 and dwg. Hold x-bolt with DT9701 Use tube expander 1/2 x17G to start expantion and finish with 1/2 x 18G to achieve dwg dimention.								
	4-Drill holes for wearplates using DT 8217 & DT8937, 7.40" from most fwd saddle holes (ref only) Open holes to 19/64", adjust stopper not to hit web.Deburr								
	6-Drill pilot holes for aft cap using DT 8215Open holes to 0.208". Deburr								
	7-Drill pilot holes for Tow ring using DT8091, open to .640"and Deburr								
150	QC10- Inspect visual per QSI004- ground welds	0.00							
150 QC	Memo	0.00							
Quality Control									

DAS
38
9-89

NOV 15 2016

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :				MRB (QSI042) Approval 	
Description Work Order Deviation				Disposition					
								Completed By	
								Lead hand / Supervisor Approval Verification	
								QC / QA Coordinator Approval	

Root Cause			FAULT CATEGORY					
Environment	☐	☐ No Re-verification	☐ Pressure/Forced	☐ Temperature/Cure	☐ Power Loss/Surge	☐ Positioned Wrong		
Design	☐	☐ Operator	☐ Bending	☐ Set-up	☐ Folio/Program	☐ Outside Dimensions		
Doc/Data	☐	☐ Offset/Setup	☐ Centre Not Concentric	☐ BOM/Route	☐ Grain	☐ Over/Under tolerance		
Equip/Tooling	☐	☐ Supplier	☐ Cracks	☐ Broken/Damage/Defect	☐ Weld	☐ Part Incorrect		
Handling/Pre	☐	☐ Training	☐ Crimp/Kink/Ripple/Wave	☐ Inspection Incomplete/Unqualified	☐ Wrong Stock Pulled	☐ Part Lost/Missing		
Material	☐	☐ Use for Testing	☐ Cuffs	☐ Contamination	☐ Out of Sequence	☐ Part Moved		
Internal Transport	☐	☐ Poor Information	☐ Crushing	☐ Countersink	☐ Off-set	☐ Drawing		
Tribal Knowledge	☐	☐ Rushing	☐ Heat Treat	☐ Cut Too Short	☐ Mislabeled	☐ Finish		
LOA	☐	☐ Product Improvement	☐ Wave/Twist in Tube	☐ Instructions Incomplete/Unclear	☐ Fit/Function	☐ Misread		
Substation	☐	☐ Process Improvement	☐ Marks/Chatter	☐ Drill Holes	☐ Misaligned/off center	☐ Turning Sequence		
Past Expiry Date	☐	☐ Manufacturing Process	OTHER : _____					
Misidentified	☐	☐ Past Due						

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Page 4

Item ID: D205-634-041

Accept

N900040100

Setup Start

NS1

Revision ID:

Stop

NS2

Item Name: Replacement Skidtube with Standard Wearplates Fits LH or RH

Start Date: 9/16/2016 Start Qty: 1.00

1

Cust Item ID:

Required Date: 9/23/2016 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start

NR1

QC:

Date:

SPC (Y/N):

Date:

Stop

NR2Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

160

QC5- Inspect part completeness to step on W/O

0.00

160

QC

Memo

0.00

Quality Control

NOV 15 2016

170

Pressure Wash per QSI005 4.3

0.00

170

HandFinish

Memo

0.09

Hand Finishing

Re-alodine tube as per QSI 005 section 4.1.2.1 do not acid etch and leave fwd cap out of solution.

(X1)

✓

2016/11/16
BEB

180

White Gloss(Ref:4.3.5.1) per QSI005 4.3-Alum

0.00

180

Powdercoat

M 135418.

Memo

0.05

Powder Coating

START TIME:

OVEN TEMPERATURE:

FINISH TIME:

1:40
330
2:10.

1 \$ 16-1205 DAS 34 9-89

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :				MRB (QS1042) Approval Completed By _____ Lead hand / Supervisor Approval Verification _____ QC / QA Coordinator Approval _____	
Description Work Order Deviation				Disposition					
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐							
		OTHER : _____							

Work Order ID 151384

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Item ID: D205-634-041**Accept*****N900040100*****Setup Start*****NS1*****Revision ID:****Item Name:** Replacement Skidtube with Standard Wearplates Fits LH or RH**Stop*****NS2*****Start Date:** 9/16/2016 **Start Qty:** 1.00***1*****Cust Item ID:****Required Date:** 9/23/2016 **Req'd Qty:** 1.00***1*****Customer:****Reference:****Approvals:****Process Plan:** _____**Date:** _____**Tooling:** _____**Date:** _____**Run Start*****NR1*****QC:** _____**Date:** _____**SPC (Y/N):** _____**Date:** _____**Stop*****NR2*****Sequence ID/
Work Center ID****Operation
Description****Set Up/
Run Hours****Tool ID****Tool #****Plan
Code****Accept
Qty****Reject
Qty****Reject
Number****Insp.
Stamp**

190

QC3- Inspect Part Finish

0.00

190

QC

Memo

0.00

Quality Control

1x of 10 16/12/05

**DAS
15
9-89**

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :				MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval	
Description Work Order Deviation				Disposition					
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐							
		OTHER : ☐							

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Item ID: D205-634-041

Accept

N900040100

Setup Start

NS1

Revision ID:

Stop

NS2

Item Name: Replacement Skidtube with Standard Wearplates Fits LH or RH

Start Date: 9/16/2016 Start Qty: 1.00

1

Cust Item ID:

Required Date: 9/23/2016 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals:

Process Plan: _____

Date: _____

Tooling: _____

Date: _____

Run Start

NR1

QC: _____

Date: _____

SPC (Y/N): _____

Date: _____

Stop

NR2Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

200

0.00

200

HandFinish

Hand Finishing

Memo

0.26

1-Install inserts & wearplates & Gaskets as per Dwg. D2580. Use a drop of Sikaflex on insert holes before installing wearplates

A/R Sikaflex-291

Sikaflex expire date: 11/13/09

2-Coat D2594-3 O' rings with Petroleum Jelly and install on D2594-1 plugs as per Dwg D2580

3-Inspect for foreign object per QSI 024

4-Install 2855 Aft Cap as per Dwg D2580 and seal Fwd Step & Aft Cap with Sikaflex. Clean excess adhesive

A/R Sikaflex-291

Sikaflex expire date: 11/13/09

5-Wing Walk as per Dwg D2580 and QSI 005 4.4

Batch: 111358910 7 10/12/09

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐																																																													
Date :		Step #:		QTY Effective :				MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval																																																									
Description Work Order Deviation				Disposition																																																													
Root Cause		FAULT CATEGORY																																																															
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐	Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐	Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐	Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐	Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐	Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐	Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐	Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐	LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐	Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐	Past Expiry Date ☐	Manufacturing Process ☐	OTHER :			
Misidentified ☐	Past Due ☐																																																																

Work Order ID 151384***151384***

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Required Date: 9/23/2016 Req'd Qty: 1.00

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Approvals:

Process Plan: _____

Date: _____

Tooling: _____

Date: _____

Run Start

NR1

QC: _____

Date: _____

SPC (Y/N): _____

Date: _____

Stop

NR2Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

210

QC5- Inspect part completeness to step on W/O

0.00

210

QC

Memo

0.00

Quality Control

Inspect Aft Cap, Fwd Step and Wing Walk of work to Current Step Inspect for Foreign objects per QSI 024

DAS

38

9-89

DEC 07 2016

220

Packaging

0.00

220

Packaging

Memo

0.00

Packaging

Identify and pack for shipping as per PPPD205-634-041

Location: _____

PPP Rev: _____

fsg 084

DAS

27

9-89

DEC 08 2016

230

QC21- Final Inspection - Work Order Release

0.00

230

QC

Memo

0.02

Quality Control

DAS

21

9-89

DEC 09 2016

DAS

21

9-89

DEC 09 2016

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed: _____ Date: _____

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<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th colspan="2" style="text-align: left;">Root Cause</th> <th colspan="4" style="text-align: left;">FAULT CATEGORY</th> </tr> <tr> <td style="width:15%;">Environment ☐</td> <td style="width:15%;">No Re-verification ☐</td> <td style="width:15%;">Pressure/Forced ☐</td> <td style="width:15%;">Temperature/Cure ☐</td> <td style="width:15%;">Power Loss/Surge ☐</td> <td style="width:15%;">Positioned Wrong ☐</td> </tr> <tr> <td>Design ☐</td> <td>Operator ☐</td> <td>Bending ☐</td> <td>Set-up ☐</td> <td>Folio/Program ☐</td> <td>Outside Dimensions ☐</td> </tr> <tr> <td>Doc/Data ☐</td> <td>Offset/Setup ☐</td> <td>Centre Not Concentric ☐</td> <td>BOM/Route ☐</td> <td>Grain ☐</td> <td>Over/Under tolerance ☐</td> </tr> <tr> <td>Equip/Tooling ☐</td> <td>Supplier ☐</td> <td>Cracks ☐</td> <td>Broken/Damage/Defect ☐</td> <td>Weld ☐</td> <td>Part Incorrect ☐</td> </tr> <tr> <td>Handling/Pre ☐</td> <td>Training ☐</td> <td>Crimp/Kink/Ripple/Wave ☐</td> <td>Inspection Incomplete/Unqualified ☐</td> <td>Wrong Stock Pulled ☐</td> <td>Part Lost/Missing ☐</td> </tr> <tr> <td>Material ☐</td> <td>Use for Testing ☐</td> <td>Cuffs ☐</td> <td>Contamination ☐</td> <td>Out of Sequence ☐</td> <td>Part Moved ☐</td> </tr> <tr> <td>Internal Transport ☐</td> <td>Poor Information ☐</td> <td>Crushing ☐</td> <td>Countersink ☐</td> <td>Off-set ☐</td> <td>Drawing ☐</td> </tr> <tr> <td>Tribal Knowledge ☐</td> <td>Rushing ☐</td> <td>Heat Treat ☐</td> <td>Cut Too Short ☐</td> <td>Mislabeled ☐</td> <td>Finish ☐</td> </tr> <tr> <td>LOA ☐</td> <td>Product Improvement ☐</td> <td>Wave/Twist in Tube ☐</td> <td>Instructions Incomplete/Unclear ☐</td> <td>Fit/Function ☐</td> <td>Misread ☐</td> </tr> <tr> <td>Substation ☐</td> <td>Process Improvement ☐</td> <td>Marks/Chatter ☐</td> <td>Drill Holes ☐</td> <td>Misaligned/off center ☐</td> <td>Turning Sequence ☐</td> </tr> <tr> <td>Past Expiry Date ☐</td> <td>Manufacturing Process ☐</td> <td colspan="4" rowspan="2" style="text-align: center; vertical-align: top;">OTHER : _____</td> </tr> <tr> <td>Misidentified ☐</td> <td>Past Due ☐</td> </tr> </table>					Root Cause		FAULT CATEGORY				Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐	Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐	Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐	Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐	Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐	Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐	Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐	Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐	LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐	Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐	Past Expiry Date ☐	Manufacturing Process ☐	OTHER : _____				Misidentified ☐	Past Due ☐
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Picklist Print

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Page 1

Work Order ID: 151384

151384

Parent Item: D205-634-041

D205-634-041

Parent Item Name: Replacement Skidtube with Standard Wearplates Fits LH or RH

Start Date: 9/16/2016

Required Date: 9/23/2016

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP Rev:N 02.08.28 FP was QC5 in Step 27; Added QC5 to Step 30
KJ IPP Rev P 10.02.19
per PAR09-043 EC verified by:DD
IPP Rev. O 06.02.28 Added paperwork EC
IPP Rev:P 07-07-09 SS Wearplates & Gaskets JLM IPP Rev:Q
10.12.01 as per chg003 DD verf:EC IPP REV:R 12.01.23 AS
PER ECN11-684 VERF:EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D4202-1 *D4202-1* Spacer		Manufactured	No			140	Each	257.0000	20	20			
					<u>Location</u>	<u>Loc Qty</u>		<u>Loc Code</u>					
					LG001 151107	257				20			
					145902	5							
					147952	252							
D2580-1 *D2580-1* 205 Bent Tube		Manufactured	No			110	Each	6.0000	1	1			
					<u>Location</u>	<u>Loc Qty</u>		<u>Loc Code</u>					
					LG002 151011	6				1			
					148589	2							
					148943	4							
D2576-3 *D2576-3* Step (Machining Detail)		Manufactured	No			140	Each	47.0000	1	1			
					<u>Location</u>	<u>Loc Qty</u>		<u>Loc Code</u>					
					LG001	47							
					144673	10							
					148337	37							

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Page 2

Work Order ID: 151384

151384

Parent Item: D205-634-041

D205-634-041

Parent Item Name: Replacement Skidtube with Standard Wearplates Fits LH or RH

Start Date: 9/16/2016

Required Date: 9/23/2016

Start Qty: 1.00

Required Qty: 1.00

D2855 Manufactured No 200 Each 17.0000 1 1

D2855

Cap

all 16/12/02

Location

Loc Qty

Loc Code

FP001

17

137568

2

147805

15

AN3-5A

Purchased No

200 Each

322.0000

2

2

AN3-5A

Bolt

all 16/12/05

Location

Loc Qty

Loc Code

FP001

155

m134502

155

ST350

167

m135058

167

NAS1149D0332J

Purchased No

200 Each

1,546.000

2

2

NAS1149D0332.J

Washer

all 16/12/05

Location

Loc Qty

Loc Code

CA

6

m129682

6

FP001

204

m134848

204

GA

300

m134848

300

ST260a

600

m135672

600

ST264

436

m135536

31

m135566

405

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Shop Packet Print

Page 2

Picklist Print

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Page 3

Work Order ID: 151384

151384

Parent Item: D205-634-041

D205-634-041

Parent Item Name: Replacement Skidtube with Standard Wearplates Fits LH or RH

Start Date: 9/16/2016

Required Date: 9/23/2016

Start Qty: 1.00

Required Qty: 1.00

ALS7-1032-130

AELS8-1032-130

Purchased

No

200

Each

757.0000

50

50

AI S7-1032-130 *✓*

del 16/12/05

Rivnut

ALS4-1032-130

Location

Loc Qty

Loc Code

FG

50

M139442

M128649

50

250

FP001

707

M128649

707

Picklist Print

Page 4

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Work Order ID: 151384

151384

Parent Item: D205-634-041

D205-634-041

Parent Item Name: Replacement Skidtube with Standard Wearplates Fits LH or RH

Start Date: 9/16/2016

Required Date: 9/23/2016

Start Qty: 1.00

Required Qty: 1.00

AN3C4A

Purchased

No

200

Each

1,530.000

50

50

AN3C4A*******all valves*

Bolt

LocationLoc QtyLoc Code

FG

20

122814

20

*11135948**x30*

FP001

660

M133440

7

M134396

41

M134509

6

M134606

29

M134676

44

M134762

106

M134861

13

M135058

340

M135127

22

M135297

52

OVER002

750

M135127

0

M135297

0

M135442

500

M135704

250

ST350

100

M132317

3

M134134

18

M134396

79

Picklist Print

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Work Order ID: 151384

151384

Parent Item: D205-634-041

D205-634-041

Parent Item Name: Replacement Skidtube with Standard Wearplates Fits LH or RH

Start Date: 9/16/2016

Required Date: 9/23/2016

Start Qty: 1.00

Required Qty: 1.00

NAS1149C0332R

Purchased

No

200

Each

4,512.000

50

50

NAS1149C0332R

WASHER

Location

Loc Qty

Loc Code

FP001

1162

m135274

1162

11136149

150

GA

131

m133284

131

ST260a

2000

m135408

1000

m135466

1000

ST266

1219

m134736

219

m135672

1000

D3566-13

Manufactured

No

200

Each

11.0000

1

1

D3566-13

Gasket Fwd

Location

Loc Qty

Loc Code

FG

2

98908

2

B151142

12

FP001

9

148070

9

Picklist Print

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Page 6

Work Order ID: 151384

151384

Parent Item: D205-634-041

D205-634-041

Parent Item Name: Replacement Skidtube with Standard Wearplates Fits LH or RH

Start Date: 9/16/2016

Required Date: 9/23/2016

Start Qty: 1.00

Required Qty: 1.00

D3566-5

Manufactured No

200

Each

27.0000

1

1

D3566-5

Gasket Center Aft

**

del 16/12/05

Location

Loc Qty

Loc Code

FG
139236
FP001
147914
FP002
148071

2
2
19
19
6
6

x1

D3566-1

Manufactured No

200

Each

18.0000

2

2

D3566-1

Gasket Aft / Fwd

**

del 16/12/05

Location

Loc Qty

Loc Code

FG
117012
139221
FP001
139221
140819
149559

8
4
4
10
4
1
5

B153995

x2

D3564-11

Manufactured No

200

Each

16.0000

1

1

D3564-11

Wearplate Aft

**

del 16/12/05

Location

Loc Qty

Loc Code

FG
77056
FP002
148650

4
4
12
12

B15145

B152217

x1

Picklist Print

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Work Order ID: 151384

151384

Parent Item: D205-634-041

D205-634-041

Parent Item Name: Replacement Skidtube with Standard Wearplates Fits LH or RH

Start Date: 9/16/2016

Required Date: 9/23/2016

Start Qty: 1.00

Required Qty: 1.00

D3564-13

Manufactured No

200

Each

20.0000

1

1

D3564-13

Wearpad Fwd

all 16/12/16

Location

Loc Qty

Loc Code

FG

2

89044

2

FP001

18

147966

11

148702

7

xl

D3564-9

Manufactured No

200

Each

7.0000

1

1

D3564-9

Wearplate Fwd

all 16/12/16

Location

Loc Qty

Loc Code

FG

6

76950

4

88407

2

FP002

1

145843

1

B151145

xl

D3564-5

Manufactured No

200

Each

16.0000

1

1

D3564-5

Wearplate Center

all 16

Location

Loc Qty

Loc Code

FG

3

34806

1

89048

2

FP002

13

147887

13

B151722

xl

Picklist Print

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Page 8

Work Order ID: 151384

151384

Parent Item: D205-634-041

D205-634-041

Parent Item Name: Replacement Skidtube with Standard Wearplates Fits LH or RH

Start Date: 9/16/2016

Required Date: 9/23/2016

Start Qty: 1.00

Required Qty: 1.00

D2594-3

Manufactured No

200

Each

578.0000

16

16

D2594-3

O-Ring

**

ll 16/12/06

Location

Loc Qty

Loc Code

FP001

578

135859

24

138060

2

140770

2

145268

500

147875

50

x16

D2594-1

Manufactured No

200

Each

314.0000

16

16

D2594-1

Plug

**

ll 16/12/06

Location

Loc Qty

Loc Code

FP001

314

119830

68

134804

16

146645

85

147564

1

147974

7

148319

105

42807

25

88922

7

B151971

x16

LIST OF MATERIALS						
ITEM	QTY -041	QTY -045	QTY -047	QTY -049	PART NUMBER	DESCRIPTION
1	X				D2580-041	SKIDTUBE ASSEMBLY
2		X			D2580-045	SKIDTUBE ASSEMBLY
3			X		D2580-047	SKIDTUBE ASSEMBLY
4				X	D2580-049	SKIDTUBE ASSEMBLY
20	1	1	1	1	D2500-1-190	EXTRUSION
21			16	16	D2570	BUSHING
22	1	1	1	1	D2576-3	STEP
23		4			D2579	SPACER
24	16	16	8	8	D2594-1	PLUG
25	16	16	8	8	D2594-3	O-RING
26	1	1	1	1	D2596	205 WEB
27	1	1	1	1	D2855	AFT CAP
28	1	1			D3564-5	WEARSHOE
29	1	1			D3564-9	WEARSHOE
30	1	1			D3564-11	WEARSHOE
31	1	1			D3564-13	WEARSHOE
32	2	2			D3566-1	GASKET
33	1	1			D3566-5	GASKET
34	1	1			D3566-13	GASKET
35	20	20	24	24	D4202-1	SPACER
36			1		D4406-041	WEARPLATE ASSEMBLY
37			1		D4406-043	WEARPLATE ASSEMBLY
37				1	D5061-1	FWD WEARPLATE
37				1	D5061-3	AFT WEARPLATE
50	50	50			ALS7-1032-130 or AKS7-1032-130 or AKS4-1032-130 or AELS-1032-130	INSERT
51	50	50			AN3C4A	BOLT
52	2	2	2	2	AN3-5A	BOLT
53			8	8	AN4-45A	BOLT
54	50	50			NAS1149C0332R	WASHER (AN960C10L)
55	2	2	2	2	NAS1149D0332J	WASHER (AN960D10L)
56			8	8	MS21042-4	NUT (OR MS21042L4)

GENERAL NOTES:

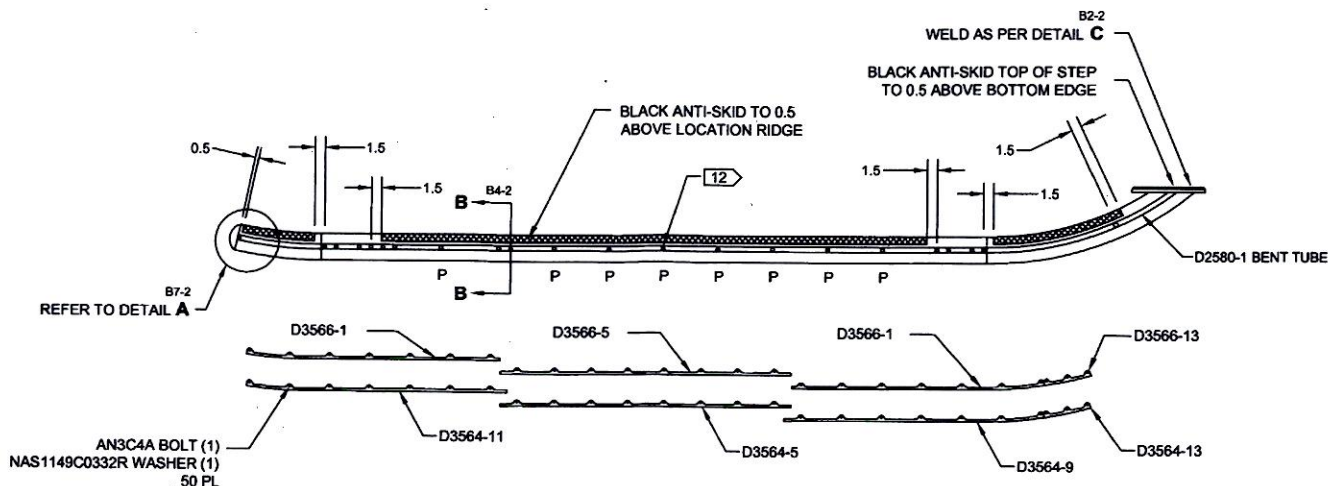
- 1) MATERIAL: N/A
- 2) FINISH: CHEMICAL CONVERSION PER DART QSI 005 4.1 PRIOR TO INSERTING D2596 WEB POWDER COAT ASSEMBLY (-041/-047/-049) GLOSS WHITE (REF 4.3.5.1) PER DART QSI 005 4.3 POWDER COAT ASSEMBLY (-045) GREEN SANDTEX (REF 4.3.5.8) PER DART QSI 005 4.3 BLACK ANTI-SKID PAINT AS INDICATED PER DART QSI 005 4.4.
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: D2580-041 = 34.5 lbs
D2580-045 = 34.5 lbs
D2580-047 = 45.1 lbs
D2580-049 = 32.0 lbs
- 8) WELDING PER DART QSI 004.
- 9) INSERT D2596 WEB TO LOCATION SHOWN OFF AFT END OF SKIDTUBE AND BOND WEB INTO OUTER TUBE WITH NON-STRUCTURAL SIKAFLEX-241 ADHESIVE PER DART QSI 015 BEFORE BENDING. ENSURE HOLES LINE-UP.
- 10) BEND AS A SMOOTH RADIUS STARTING WITH A MAXIMUM CENTERLINE RADIUS OF 60 AND ENDING WITH A MINIMUM RADIUS OF 30. A MAXIMUM REDUCTION OF 0.200 IN DIAMETER IS ALLOWABLE IN THE BENT PORTION OF THE TUBE.
- 11) USE DART DRILL TEMPLATE DT8217 & DT8937 ONLY FOR D2580-041/-045 TO LOCATE AND DRILL 20.297 HOLES FOR WEARSHOE INSERTS. INSTALL ALS7-1032-130 PER SECTIONS B-B AND F-F (50 PLACES) AFTER FINISH. INSTALL AN3C4A BOLTS AND NAS1149C0332R WASHERS WITH SIKAFLEX-241/-291.
- 12) INSERT D2594-1 PLUG C/W D2594-3 O-RING IN HOLES MARKED 'P' (BOTH SIDES OF TUBE) AFTER FINISH (16 PLACES FOR D2580-041/-045 AND 6 PLACES FOR D2580-047/-049)
- 13) IT IS ACCEPTABLE TO GRIND A RELIEF IN THE D2855 AFT CAP TO PREVENT INTERFERENCE WITH THE SPACER AT THIS LOCATION

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER

NO. 151384 MJS
16-09-28

RELEASED
2014-04-29

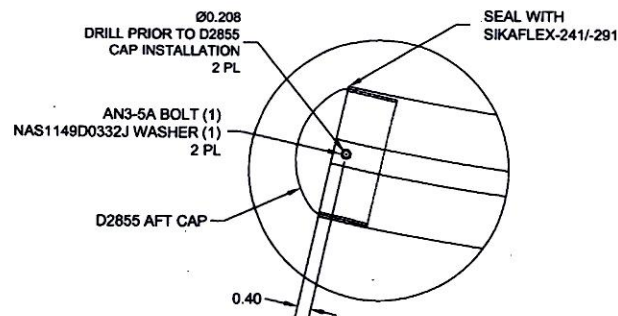
G	ADDED -049, -047 WEIGHT UPDATED PER DSI 9598	AJS	14.04.09
F	INCORPORATE DEO D2580-E-1 PER PAR12-218	DC	13.06.20
E	ADD D2580-047 (ZN C4-7) AND D2580-7 (ZN B3-8); INCLUDED DEO D2580-D-1; REFORMATTED DRAWING TO CURRENT STANDARDS; DT8217 & DT8937 WAS TD2577-205 (ZN C4-1)	RF	11.06.21
D	CHANGE TO SS WEARPLATES AND GASKETS, INCLUDE DEO 9124/ 9183	PH	07.04.05
C	REDRAWN, INCLUDED DEO 9094/ 9097	CP	98.08.28
B	AS MANUFACTURED	DS	96.12.02
A	NEW ISSUE	DS	96.09.16
REV.	DESCRIPTION	BY	DATE
DESIGN	DS	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	AJS		
CHECKED	A.P.	DRAWING NO.	REV. G
MFG. APPR.	D	D2580	SHEET 1 OF 9
APPROVED	149	TITLE	SCALE
DE APPR.	149	205 SKIDTUBE ASSEMBLY	NTS
DATE	14.04.09	COPYRIGHT © 1996 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	



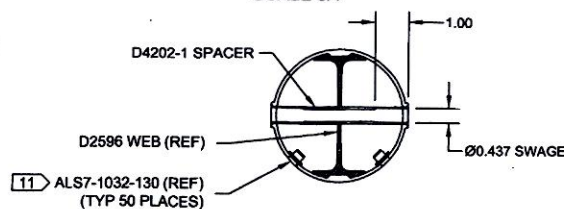
D2580-041 ASSEMBLY DETAIL

RELEASED
2014-04-29

DETAIL A C7-2
SCALE 5X

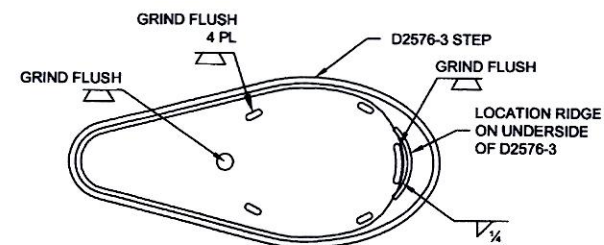


SECTION B-B D5-2
SCALE 5X

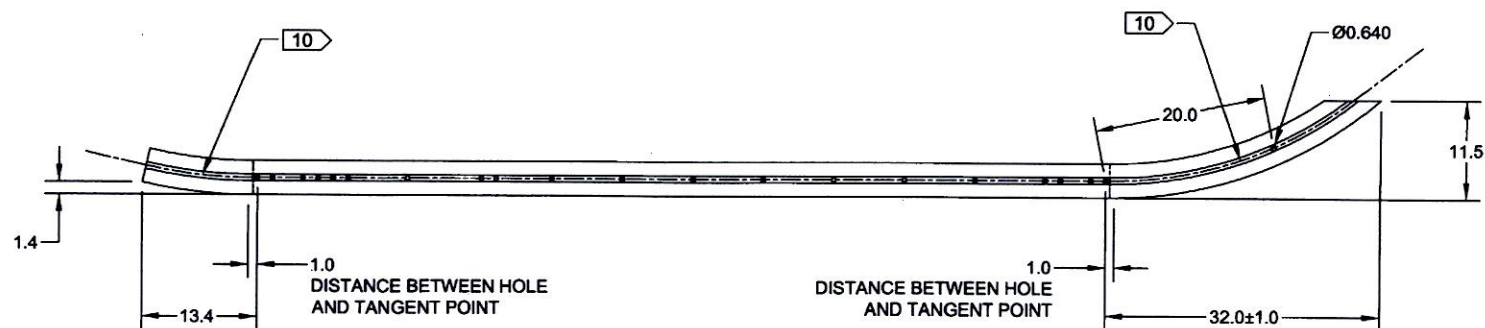


AFTER DRILLING AND BENDING ASSEMBLY
PERFORM THE FOLLOWING FOR Ø0.508 HOLES ONLY:
1. INSERT D4202-1 SPACER (20 PLACES)
2. SWAGE TO Ø0.437 X 1.00 DEEP PER QSI 002
3. TRIM / GRIND FLUSH PER QSI 002

DETAIL C D3-2
SCALE 5X



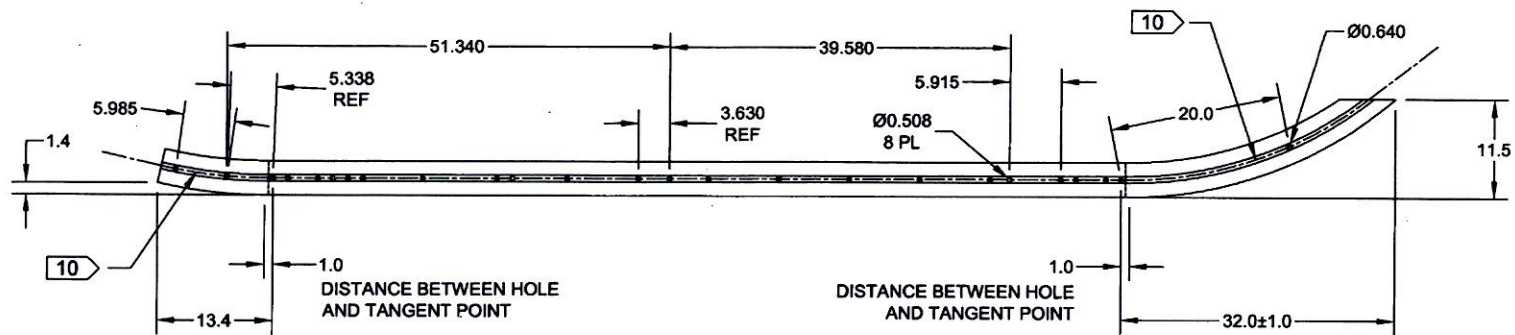
DESIGN	DS	DART AEROSPACE LTD	
DRAWN	AJS	HAWKESBURY, ONTARIO, CANADA	
CHECKED	<i>A.P.</i>	DRAWING NO.	REV. G
MFG. APPR.	<i>[Signature]</i>	D2580	SHEET 2 OF 9
APPROVED	<i>[Signature]</i>	TITLE	SCALE
DE APPR.	<i>[Signature]</i>	205 SKIDTUBE ASSEMBLY	NTS
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D2580-1 BENT TUBE
(MAKE FROM D2580-101 TUBE)

RELEASED
2014-04-29

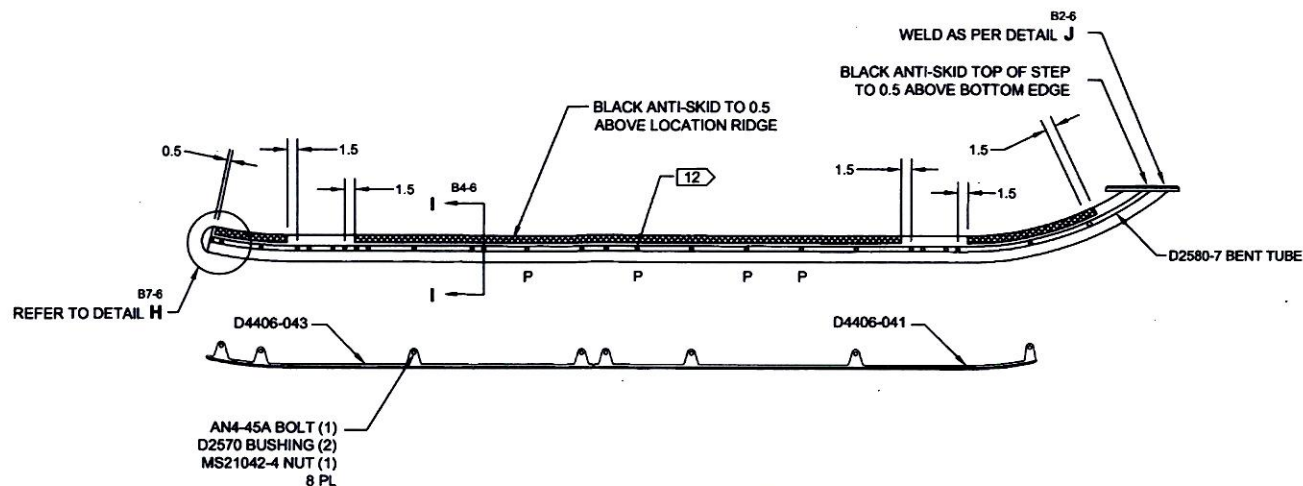
DESIGN	DS	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	AJS		
CHECKED	A.P.	DRAWING NO.	REV. G
MFG. APPR.		D2580	SHEET 3 OF 9
APPROVED		TITLE	SCALE
DE APPR.		205 SKIDTUBE ASSEMBLY	NTS
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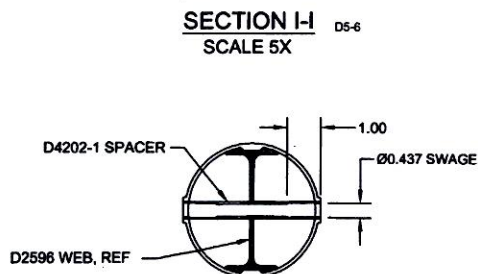
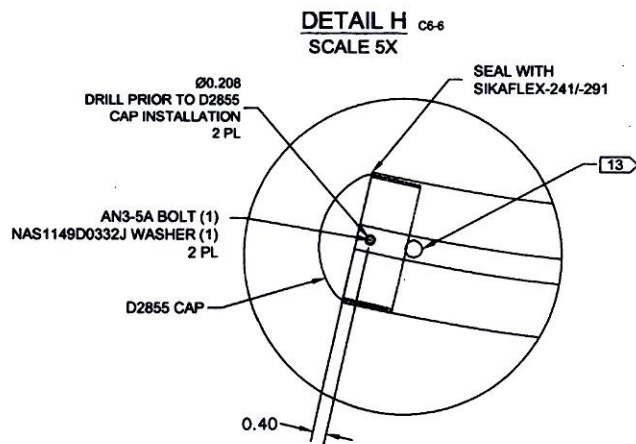
D2580-5 BENT TUBE
(MAKE FROM D2580-101 TUBE)

RELEASED
2014-04-29

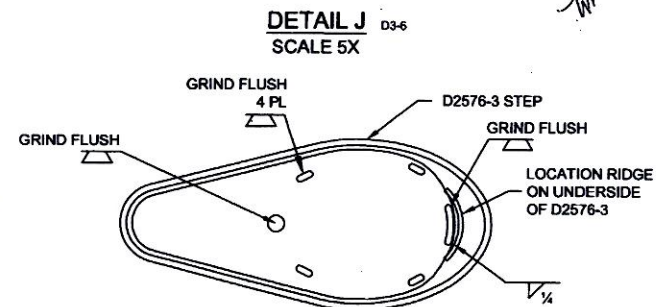
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DRAWN	AJS		
CHECKED	<i>g.l.</i>	DRAWING NO.	REV. G
MFG. APPR.	<i>[Signature]</i>	D2580	SHEET 5 OF 9
APPROVED	<i>[Signature]</i>	TITLE	SCALE
DE APPR.	<i>[Signature]</i>	205 SKIDTUBE ASSEMBLY	NTS
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D2580-047 ASSEMBLY DETAIL

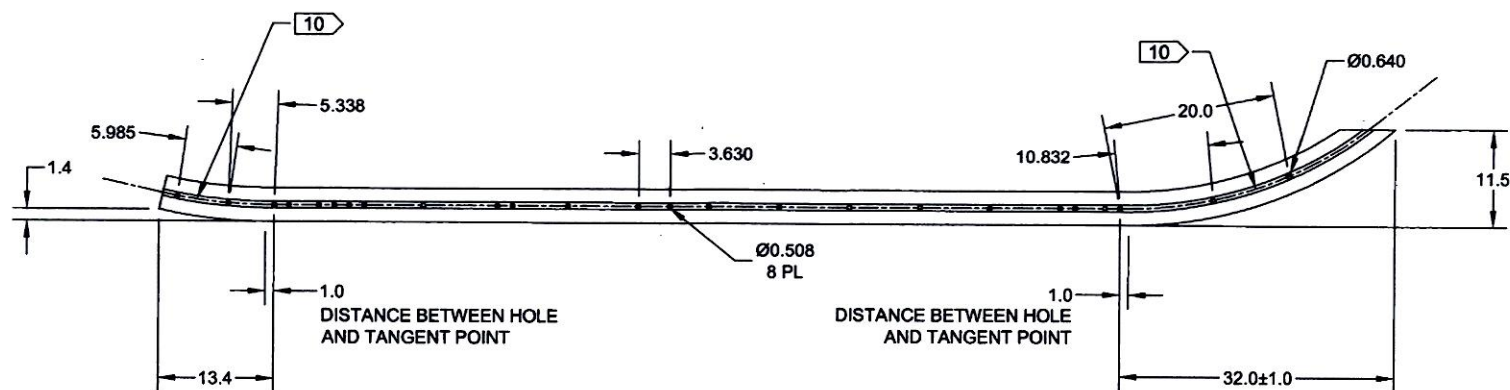


AFTER DRILLING AND BENDING ASSEMBLY
PERFORM THE FOLLOWING FOR Ø0.508 HOLES ONLY:
1. INSERT D4202-1 SPACER (24 PLACES)
2. SWAGE TO Ø0.437 X 1.00 DEEP PER QSI 002
3. TRIM/GRIND FLUSH PER QSI 002



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DRAWN	AJS		
CHECKED	A.P.	DRAWING NO.	REV. G
MFG. APPR.		D2580	SHEET 8 OF 9
APPROVED		TITLE	SCALE
DE APPR.		205 SKIDTUBE ASSEMBLY	NTS
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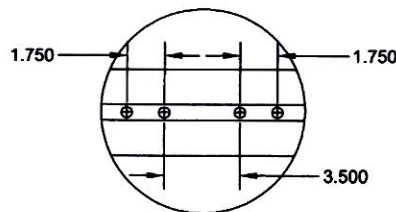
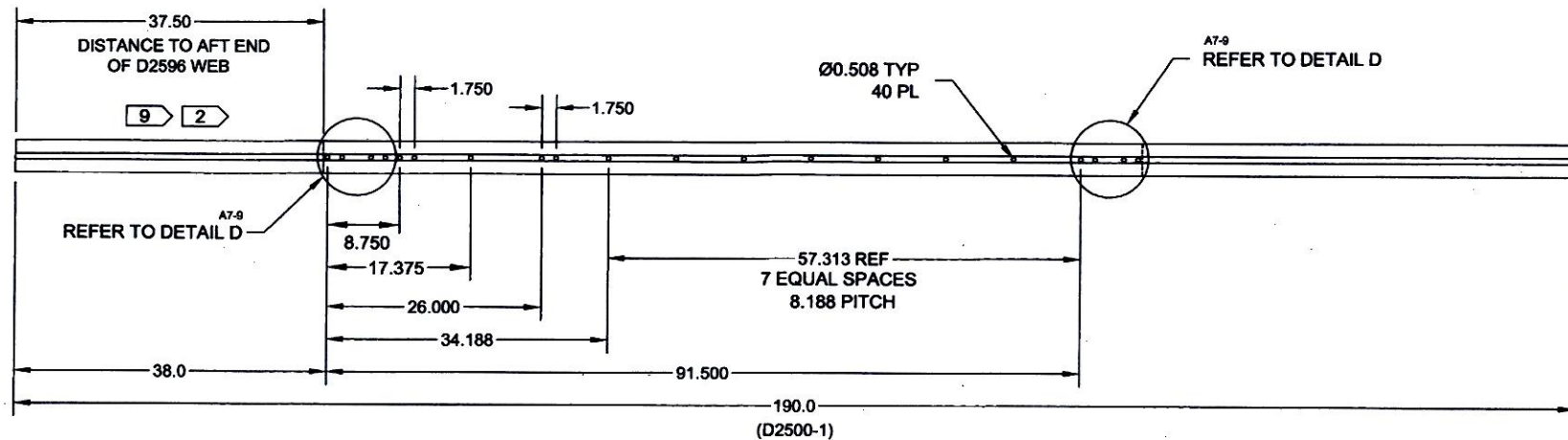
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2014-04-29



D2580-7 BENT TUBE
(MAKE FROM D2580-101 TUBE)

RELEASED
2014-04-29
WPD

DESIGN	DS	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	AJS		
CHECKED	A.P.	DRAWING NO.	REV. G
MFG. APPR.	WPD	D2580	SHEET 8 OF 9
APPROVED	WPD	TITLE	SCALE
DE APPR.	WPD	205 SKIDTUBE ASSEMBLY	NTS
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DETAIL D C3-9
SCALE 5X C7-9

D2580-101 TUBE

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2014-04-29
WD

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DRAWN	AJS		
CHECKED	A.P.	DRAWING NO.	REV. G
MFG. APPR.	M	D2580	SHEET 9 OF 9
APPROVED	M	TITLE	SCALE
DE APPR.	M	205 SKIDTUBE ASSEMBLY	NTS
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